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| 09/678,297      | 10/03/2000  | HIROSHI KABURAGI     | 862.C2023           | 5739             |

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EXAMINER

PHAM, THIERRY L

| ART UNIT | PAPER NUMBER |
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2624

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/678,297

Applicant(s)

KABURAGI ET AL.

Examiner

Thierry L Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Image Processing Apparatus for Binarizing the Multilevel Image into Binary Image.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6, 9-11, 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Terashima et al (U.S. 6538762).

Regarding claim 1, Terashima discloses an image processing apparatus (host computer, fig. 3) having input means (input I/F, fig. 8) for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means for binarizing the multilevel image, which has been input by the input means, to a binary image (color conversion/halftoning section of fig. 5 for converting multilevel image into binary image, col. 7, lines 65-67), said apparatus comprising:

- (1) communication means (a cable connecting from host computer to printer, fig. 3) for communicating with an external image output device via a network (fig. 3);
- (2) characteristic-information storage means (memory device 41, fig. 5) for receiving characteristics information (printer's parameters that control printing mechanism of the printer, i.e., print head characteristics, col. 2, lines 58-60 and col. 6, lines 16-38) of the external image output device from said communication means and storing the characteristic information;

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(3) connectivity control means (printer control unit, fig. 3) for controlling connectivity (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, and it is known in the art that numbers of dots are interconnected (connectivity) to form an raster/binary image) of the binary image which is binarized by the binarization means, based upon the characteristic information stored by said characteristic-information parameter (i.e. parameters that control printing mechanism of the printers, col. 6, lines 16-38) storage means; and

(4) transmitting means (a cable connecting from host computer to printer, fig. 3) for transmitting the binary image, the connectivity of which has been controlled by said connectivity control means, to the external image output device (printer, fig. 3) via said communication means.

Regarding claim 2, the apparatus according to claim 1, wherein said characteristic-information storage means stores correlation (printer control unit can convert images through use of an optimum method according to parameters compliant to the type of printer, col. 2, lines 58-61) between a parameter which decides connectivity of a binary image binarized by said binarization means and engine characteristic information represent engine characteristics of the image output device (i.e., characteristics of a print head of an ink-jet printer, col. 6, lines 15-39).

Regarding claims 3-5, please see rejection rationale/basis as described in claims 1-2 above.

Regarding claim 6, Terashima an image processing apparatus (host computer, fig. 3) having input means (input I/F, fig. 8) for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means (color conversion/halftoning section of fig. 5 for converting multilevel image into binary image, col. 7, lines 65-67) for binarizing the multilevel image, which has been input by the input means, to a binary image, said apparatus comprising:

(1) communication means (a cable connecting from host computer to printer, fig. 3) for communicating a parameter (i.e. parameters that control printing mechanism of the printers, col. 6, lines 16-38) with an external image output device via a network (fig. 3), said parameter controlling connectivity of a binary image (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster

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image, and etc., col. 6, lines 30-38, and it is known in the art that numbers of dots are interconnected to form a raster/binary image) binarized by the binarization means;

(3) connectivity control means (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, and it is known in the art that numbers of dots are interconnected to form a raster/binary image) for controlling connectivity of the binary image, which is binarized by the binarization means, based upon a parameter of an output destination (i.e. parameters that control printing mechanism of the printers, col. 6, lines 16-38) obtained by said communication means; and

(4) transmitting means (a cable connecting from host computer to printer, fig. 3) for transmitting the binary image, the connectivity of which has been controlled by said connectivity control means, to the external image output device via said communication means.

Regarding claims 9-10: Claims 9-10 are the method claims corresponding to the apparatus claim 1. The methods are inherent and included by the operation of the apparatus. Please see claims rejection basis/rationale as described in claim 1 above.

Regarding claim 11: Claim 11 are the methods corresponding to the apparatus in claim 6. The methods are inherent and included by the operation of the apparatus. Please see claims rejection basis/rationale as described in claim 6 above.

Claims 14-15 correspond to claim 1 and 3 (respectively) except computer readable memory medium for storing program is claimed rather than printing system or data output apparatus. All computers have some type of computer readable memory medium (DRAM, fig. 7) for storing computer programs, hence claims 14-15 would be rejected using the same rationale as in claims 1 and 3 (respectively).

Claim 16 corresponds to claim 6 except computer readable memory medium for storing program is claimed rather than printing system or data output apparatus. All computers have some type of

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computer readable memory medium (DRAM, fig. 7) for storing computer programs, hence claim 16 would be rejected using the same rationale as in claim 6.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-8, 12-13, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terashima et al (U.S. 6538762), and in view of Wang (U.S. 5854882).

Regarding claim 7, Terashim discloses an image processing apparatus host computer, fig. 3) having input means (input I/F, fig. 8) for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means (color conversion/halftoning section of fig. 5 for converting multilevel image into binary image, col. 7, lines 65-67) for binarizing the multilevel image, which has been input by the input means, to a binary image, said apparatus comprising:

(1) communication means (a cable connecting from host computer to printer, fig. 3) for communicating with an external image output device via a network;

(2) connectivity control means (printer control unit of fig. 3 controls backend parameters such as horizontal and vertical resolutions, numbers of dots in one raster line of raster image, and etc., col. 6, lines 30-38, and it is known in the art that numbers of dots are interconnected (connectivity) to form an raster/binary image) for controlling connectivity of a binary image, which is binarized by said binarization means, based upon the parameter calculated by said parameter calculation means.

(3) transmitting means (a cable connecting from host computer to printer, fig. 3) for transmitting the binary image, the connectivity of which has been controlled by the connectivity control means, to the external image output device via said communication means.

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However, Terashima does not explicitly disclose an image processing apparatus comprising: a reading means for reading a test pattern for calculation a connectivity parameter; a parameter calculation means for calculating a parameter, which controls connectivity of the binary image binarized by said binarization means, in conformity with results obtained from said reading means; connectivity control means for controlling connectivity of a binary image, which is binarized by said binarization means, based upon the parameter calculated by said parameter calculation means; and

Wang, in the same field of endeavor for image processing apparatus, teaches (1) a reading means (optical color measurement of test patterns, figs. 8 & 13) for reading a test pattern (printed color test patterns by color printer, figs. 8 & 13, col. 8, lines 35-42) for calculation a connectivity parameter (halftone calibration/correction information to produce a dot overlap corrected (connectivity between dots) image, and it is known in the art that numbers of dots are interconnected (connectivity) to form an raster/binary image as shown in fig. 8); (2) a parameter calculation means (dithering computing unit of fig. 13 for calculating a dot overlap information of binary image, col. 14, lines 16-52) for calculating a parameter, which controls connectivity of the binary image binarized by said binarization means, in conformity with results obtained from said reading means.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Terashima as per teachings of Wang because of a following reason: (1) to determine if the correct print quality (i.e. connectivity of dots and/or dots overlap) was printed by the printer via performing the test patterns.

Therefore, it would have been obvious to combine Terashima with Wang to obtain the invention as specified in claim 7.

Regarding claim 8, Wang further teaches the apparatus according to claim 7, wherein the test pattern for detecting connectivity is a test pattern that has been output by the external image output device (test patterns are printed by the digital color printer, fig. 13).

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Regarding claims 12-13: Claims 12-13 are the methods corresponding to the apparatus in claim 7-8 (respectively). The methods are included by the operation of the apparatus. Please see claims rejection basis/rationale as described in claims 6-7 above.

Claims 17-18 correspond to claims 7-8 (respectively) except computer readable memory medium for storing program is claimed rather than printing system or data output apparatus. All computers have some type of computer readable memory medium (DRAM, fig. 7 of Terashima) for storing computer programs, hence claims 17-18 would be rejected using the same rationale as in claims 7-8 (respectively).

### ***Conclusion***

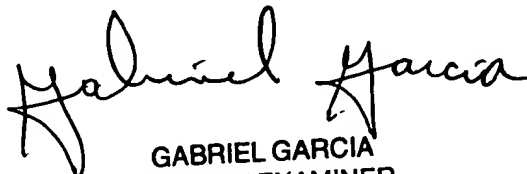
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L Pham whose telephone number is (703) 305-1897. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on (703)308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thierry L. Pham

TP

  
GABRIEL GARCIA  
PRIMARY EXAMINER